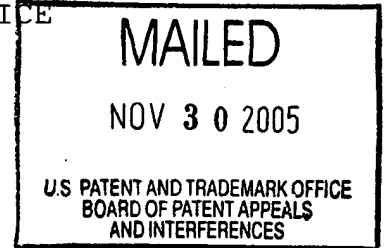


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES



Ex parte DAVID FORD and KEVIN RUDOLPH

Appeal No. 2005-2645
Application No. 09/756,477

HEARD: November 15, 2005

Before OWENS, KRATZ and FRANKLIN, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 4-7 and 13-15. Claims 8-12, which are all of the other claims pending in this application, were withdrawn from consideration by the examiner as drawn to a non-elected invention.

BACKGROUND

Appellants' invention relates to a molded door skin for a hollow core door assembly. An understanding of the invention can be derived from a reading of exemplary claims 1, and 6 which are reproduced below.

1. A molded door skin for a hollow core door assembly, comprising:
a. approximately fifty to eighty five percent by weight polypropylene.

6. A molded door skin for a hollow core door assembly comprising:
a. approximately fifty to eighty five percent by weight high impact polystyrene.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Chen	5,644,870	Jul. 08, 1997
Plummer et al. (Plummer)	5,985,429	Nov. 16, 1999
Sasaki et al. (Sasaki)	6,313,184	Nov. 06, 2001

Claims 1, 4-7 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Plummer and Sasaki.

We refer to the brief and reply brief for a complete exposition of appellants' arguments and to the answer for the examiner's opposing viewpoint concerning the issues before us on this appeal.

OPINION

Having carefully considered each of appellants' arguments set forth in the briefs and the evidence of record, appellants have not persuaded us of reversible error on the part of the examiner. Accordingly, we affirm the examiner's rejection. Our factual findings and reasoning follows.

Chen discloses a skin for a hollow core door assembly that is made from either a thermoset or a thermoplastic material. The thermoplastic material optionally including glass fibers or other additive material. Chen explains that forming a door from such synthetic materials instead of natural products, such as wood, can save trees and results in an improved door product. See the paragraph bridging columns 3 and 4 of Chen.

The examiner correctly acknowledges that Chen does not explicitly describe polypropylene¹ (independent claim 1) or

¹ Appellants employ the term "polypropylene" in the claims in a manner that reasonably embraces polypropylene copolymers, as evidenced by page 13, lines 9-24 of their specification. Because appellants also separately list polypropylene (homopolymer?) as another thermoplastic material option at page 14, lines 1-6 of their specification, we construe the claim term "polypropylene" to embrace both homopolymer and copolymer forms thereof in giving the claims their broadest reasonable construction for purposes of deciding this appeal. However, we recognize that appellants may have intended to only claim the copolymer form. See page 2 of the brief, wherein only page 13 of the specification, which impliedly references the copolymer, is referenced for support of

polystyrene (independent claim 6) as the particular thermoplastic materials used in forming the thermoplastic hollow core door skin part, as alternatively required in the two independent appealed claims before us. In fact, a review of Chen reveals that no particular thermoplastic materials are explicitly recited therein. Manifestly, the examiner's obviousness determination is based, at least in part, on the reasonable understanding that one of ordinary skill in the art would recognize that the particular choices of the particular thermoplastic to be used as the construction material of the door skin of Chen would be based on the sound discretion that one of ordinary skill in the art having knowledge or access to knowledge of such prior art materials and their properties would exercise. In this regard, Chen is not the sole piece of prior art evidence relied upon by the examiner in the stated obviousness rejection. The examiner also relies on Plummer and Sasaki.

In particular, we note that Plummer (column 2, lines 48-52) discloses that window and door components can be made from thermoplastic composite materials rather than wood. While

the polypropylene claim language. In the event of further prosecution of this application subject matter before the examiner, the examiner should revisit the issue of whether or not that claim language is in accord with all of the requirements of section 112 of the statute.

Plummer prefers polyvinyl chloride polymers (a common commodity thermoplastic polymer²), Plummer teaches or suggests that polypropylene, ethylene-propylene copolymers and polystyrene are among the known thermoplastic materials that would be suitable for use in door component part manufacture as substitutes for wood. See column 7, lines 3 through 50 of Plummer. Plummer (column 9, lines 18 and 19) suggests that the polymer should preferably comprise about 50-75% of the composite material used for making the door or window parts. While Plummer does not specifically describe a door skin for a hollow core door assembly being made from thermoplastic, Plummer teaches or suggests that door and window parts previously made of wood and metal, including various exposed parts, such as jambs, stiles, sills, trim elements, etc. can be made from such composite thermoplastic materials, as disclosed therein. See, e.g., column 1, lines 14-30 and column 1, line 39 through column 2, line 52 of Plummer.

² See page 291 of Volume 19 of the fourth edition of Kirk-Othmer Encyclopedia of Chemical Technology; Howe-Grant (editor); John-Wiley & Sons (1996) for identification of several commonly employed commodity resins (copy enclosed). The examiner may wish to consider that disclosure, as well as and other relevant pages and sections of the Kirk-Othmer Encyclopedia of Chemical Technology that may be uncovered, as prior art evidence in the event that any further prosecution of the subject matter of this application occurs before the examiner.

Given those combined teachings of Chen and Plummer concerning moldable plastic wood substitutes in manufacturing door parts, we agree with the examiner that it would have been prima facie obvious to one of ordinary skill in the art to select a known thermoplastic material such as the polypropylene or polystyrene containing materials, as taught by Plummer, for use as the thermoplastic in making the door skin of Chen. Concerning the approximately fifty to eighty five weight percent ranges of polymer, as recited in claims 1 and 6, we note that Plummer teaches that the thermoplastic composite includes other materials, such as wood and/or glass fibers, besides the polymer. As previously noted, Plummer suggests employing about 50-75 weight percent polymer in the material composite. Moreover, Chen (paragraph bridging columns 3 and 4) teaches that the door skin thermoplastic material can include glass fibers and other materials. Given the above-noted combined teachings of the references, we agree with the examiner that it would have been prima facie obvious to one of ordinary skill in the art to determine the workable amounts of polypropylene or polystyrene polymer to employ in the thermoplastic composite material to be used in forming the door skins of Chen upon routine experimentation and with a reasonable expectation degree of

success in so doing. In this regard, it is well settled that when ranges recited in a claim overlap with ranges disclosed in the prior art, a prima facie case of obviousness typically exists and the burden of proof is shifted to the applicants to show that the claimed invention would not have been obvious. See In re Peterson, 315 F.3d 1325, 1329-30, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003); In re Geisler, 116 F.3d 1465, 1469-70, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990). Also, see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.").

For similar reasons, we determine that employing an amount of glass fibers within the range as required by claim 4 (approximately 10-20 weight percent), employing an approximately 15 weight percent glass fiber and approximately sixty-six percent polypropylene amount as required by claim 5, and employing an amount of wood fiber and polystyrene as required by claim 7 (approximately 80 weight percent polystyrene and approximately 20 weight percent wood) would have been prima facie obvious to one of ordinary skill in the art given Chen's teaching to employ

glass fibers or other additive material with the thermoplastic in the composite material used to make the door skin, as discussed above, together with the teachings of Plummer (see, e.g., column 8, line 53 through column 10, line 28) with respect to using short and long fibers, including glass and/or wood fibers, in amounts less than about 50 weight percent of the composite, with the amount of fiber being a result effective variable in terms of the properties of the composite material. In this regard, particularly with regard to claims 5 and 7, see In re Peterson, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382 (Fed. Cir. 2003) ("The normal desire of scientists or artisans to improve upon what is generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.") and In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) ("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.").

Claim 13 requires approximately 15 weight percent of talc in addition to the composite material requirements for the door skin as called for in claim 5 and claims 14 and 15 require a UV

absorber.³ Concerning those claims, we again note that Chen teaches that other material can be included in the door skin polymeric material composite and that Plummer teaches using fillers and other commonly available additive materials for a similar plastic (including polypropylene) composite wood substitute for making door parts. In further regard thereto, the examiner's additional applied reference, Sasaki, teaches that such other additive materials for use in a moldable resin composite (such as polypropylene) include, inter alia, talc and known UV absorbers.⁴ Those additives are used in moldable resins in amounts suitable for their known functionality. See, e.g., column 2, lines 21 and 22 and column 7, lines 5-15 of Sasaki. Based on those combined teachings of Chen, Plummer and Sasaki, we agree with the examiner that the applied references make out a prima facie case of obviousness for the claimed subject matter.

³ See pages 214 and 2111 of the McGraw-Hill Dictionary of Scientific and Technical Terms, fifth ed., Parker (Editor in Chief), 1994 (copy attached) for definitions of the claim terms UV absorber (under UV stabilizer) and benzotriazole (under 1, 2,3-benzotriazole) for the recognized meaning and the known intrinsic UV absorbing properties of known benzotriazole compound derivatives.

⁴ Claim 15 does not require any particular benzotriazole compound UV absorber. See, e.g., footnote 3 above.

Much of appellants' argument in the main brief treats the obviousness rejection of the examiner as if the rejection were made over each of the applied references as if applied alone or, in the alternative, in a combination without Chen (the primary reference). Those misdirected arguments are not persuasive for reasons discussed herein.

Concerning appellants' viewpoint that the cited references (brief, page 15), in particular Chen (specification, page 3, lines 13-16), is a non-enabling reference, we note that appellants have not even furnished a compelling line of reasoning, much less a line of argument substantiated with the requisite objective evidence, so as to satisfy the burden associated with such an argument with respect to any prior art publication, let alone a U.S. Patent. See Amgen Inc. v. Hoechst Marion Roussel Inc., 314 F.3d 1313, 1355, 65 USPQ2d 1385, 1416-17 (Fed. Cir. 2003). Consequently, such arguments are entitled to little weight.

Appellants (reply brief, page 2) argue that Sasaki and Plummer are non-analogous art. The test of whether a reference is from an analogous art is first, whether it is within the field of the inventor's endeavor, and second, if it is not, whether it is reasonably pertinent to the particular problem with which the

inventor was involved. See In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979). A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it is one which because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering the inventor's problem. See In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992).

Appellants maintain that neither of those references are specifically directed to door skins for use with hollow core door assemblies, the field of the Chen's endeavor and by implication that of the inventors' endeavor. Moreover, appellants seemingly maintain (again by reference to Chen) that the subject matter of Plummer and Sasaki would not logically commend itself to the inventor's attention in considering the problems faced in selecting thermoplastic materials for making a door skin as claimed (and that of Chen).

We disagree. Plummer is directed to making substitute composite polymeric materials, including thermoplastic containing materials that can be substituted for wood in manufacturing wood and door components. Such a reference is not only in the general field of the inventor's endeavor but would have logically commended itself to an inventor's attention in the field of

endeavor of making thermoplastic hollow core door skins. This is so because of the common purpose of finding moldable materials that can be substituted for prior art materials; for example, wood, in making doors of synthetic materials that would have properties useful for such a door skin material. Those properties include being extrudable into a reproducible stable dimension and shape, having resistance to insect attack and rot while in use, and a hardness that would permit sawing, etc. See column 2, lines 4-45 of Plummer. Moreover, the composite polymeric materials of Sasaki are designed to have good moldability, heat resistance, and be capable of accepting dyes, UV absorbers, etc., polymeric properties which would have commended themselves to one of ordinary skill in the art looking for a door skin material. Thus, appellants' argument of non-analogousness is not persuasive.

Appellants argue that there is a lack of suggestion or motivation to combine the applied references' teachings. We disagree. For reasons set forth above, one of ordinary skill in the art would have been led by the teachings of Chen to consider other prior art teachings concerning thermoplastic materials and their properties, particularly those concerning the formation of thermoplastic parts that are useful for doors and other items

typically made of wood, as Plummer is directed to. Moreover, Sasaki would have been relevant to one of ordinary skill in the art having knowledge of Chen in that information concerning available thermoplastic materials that are moldable and useful in forming parts that can include flame retardants, UV absorbers and other functional additives that would commend themselves as being useful properties to have in a material from which door parts are made is provided. Indeed, as discussed above, it is Chen that provides the suggestion to select a thermoplastic material from among those known to be available for forming product parts or pieces by molding and form the door skin therefrom.

Appellants' general contention (brief, page 6 and specification page 3, lines 5-10) that special considerations and problems arise in manufacturing thermoplastic door skins for hollow core doors, such as injection molding costs, is not persuasive in establishing that the claimed thermoplastic door skin is not obvious over the teachings of the applied references. In this regard, the appealed claims are drawn to a product door skin that is not limited by economic factors. Moreover, appellants maintain (brief, pages 6-10) that the claimed door skin has a relatively large surface area relative to the thickness thereof as compared to other thicker parts, such as

referred to in Plummer and Sasaki.⁵ In this regard, appellants seemingly suggest that the same thermoplastic material would not be used for forming the asserted thinner claimed skin as is used for other differently shaped and thicker parts (Sasaki), and including door parts that Plummer refers to specifically.

However, appellants have not proffered persuasive evidence to substantiate that argument. Indeed, to the contrary, we note that appellants' specification appears to undercut that argument in suggesting that other door components can be made from thermoplastic material just like the door skin. See, e.g., the paragraph bridging pages 12 and 13 and page 14, lines 14-21 of the specification. Consequently, that argument is not persuasive.

The separate arguments presented by appellants at pages 12-15 of the brief are not persuasive for the reasons set forth above in explaining how the applied references establish the obviousness, within the meaning of 35 U.S.C. § 103, of each of the appealed claims.

⁵ In the sentence bridging pages 10 and 11 of the brief, appellants' acknowledge that the door skin claim language merely requires structural characteristics, such as "a relatively thin, molded panel having a relatively large surface." Thus, the preamble language does not limit the claimed subject matter in terms of the ultimate use to which that panel (part named as a door skin) may be employed for.

CONCLUSION

The decision of the examiner to reject claims 1, 4-7 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Plummer and Sasaki is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(iv) (effective Sept. 13, 2003; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sept. 7, 2004)).

AFFIRMED

Terry J. Owens

TERRY J. OWENS)
Administrative Patent Judge)

Peter F. Kratz

PETER F. KRATZ)
Administrative Patent Judge)

Beverly A. Franklin

BEVERLY A. FRANKLIN)
Administrative Patent Judge)

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